## ART. XII.—Observations on Living Polyzoa.

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## By C. M. MAPLESTONE.

## [Read August 11th, 1881.]

MANY of our Polyzoa have lately been described in Professor M'Coy's *Decades of our Fauna*, and some new species to this and to the Microscopical Society; but as very little has been said concerning the animals themselves, or the appearance of the Polyzoa in the living state, I think the presentation of my observations of such species as I have found living at Portland will be opportune.\*

The number of the tentacles varies from 8 to 24; generally they are in multiples of 4. I had supposed always so; but Seruparia chelata has 10 tentacles; Ætea anguina has generally 12, but in some cells on the same piece I observed the polyps had 13 tentacles; Diplopora cincta has 13, and Catenicella formora 18. The number of tentacles possessed by the different species of the same genus varies, so that, apparently, these details of the structure of the polyp will not assist towards the classification of them, which will depend, as hitherto, upon the form and structure of the cell or ectokyst. It will be noticed, however, that the *Cheilostomata* have never less than 10 tentacles, and that those belonging to the Cyclostomata and Ctenostomata have only 8. I hope to be able to make further observations of the animals of the three divisions, as I have found many more species than those mentioned in such a condition that I do not despair of greatly extending the knowledge of them, and I hope to be able to elucidate their life history in the course of time.

These observations have been made within the last two or three years upon specimens either dredged, obtained from old piles, drawn up from the pier, or washed up on the beach. While some of those dredged, or carefully collected from the piles, and immediately transferred into bottles of

<sup>\*</sup> The only published observations on the living animals of Australian species are contained in a Paper by Mr. J. R. Y. Goldstein, in the "Journal of the Microscopical Society of Victoria" for May, 1880.

sea-water, never expanded, many of those found on the beach did so. I should never have expected the last mentioned to be alive; but one afternoon I was fortunate enough to fill a large bag with Polyzoa, and in the evening, on making a preliminary examination with a Coddington lens, I was surprised to find some of the animals moving within the cells, and on transferring them to the zoophyte trough I was rewarded with the view of several species expanding. I mention this as it may not be generally known that if Polyzoa be gathered soon after being washed up on the beach, or *before getting dry*, and being afterwards kept merely damp, that there is a probability of finding them living, and I have often since found them so.

Some species were very beautiful when living, with the tentacles expanded, the cilia in rhythmical motion, up one side and down the other, and (in those furnished with them) the avicularia opening and closing, such as were capitate waving about slowly. No conception can be conveyed of the splendour of the pigment layer of some—e.g., Cellepora fusca.

I have included in the list of species examined, their colours when found alive, or moribund, but which did not expand, because, in most cases, they differ from those of the dead and dried specimens.

The following are the details :----

Catenicella ventricosa—Colour, orange; 12 tentacles; ova in ordinary cells.

C. lorica—Colour, orange; 12 tentacles; lateral processes very much dilated, and distended with fluid; fenestræ convex.

C. hastata—Observed mandibles of avicularia move; cells more or less spotted with purple or dark green pigment cells, the greater or less abundance of which causes the frond to appear of various shades, from orange to purple, and dark greenish grey.

C. ponderosa—Colour, red; interspaces of fenestræ; upper lip and bands on back of cells ivory white.

C. rufa—Colour, bright orange. Observed avicularia move; ovicells full of scarlet granular mass; ordinary cells also contained 3 to 5 small dark oval bodies, most probably ova.

C. formosa—Colour, pink; 18 tentacles; animal very large, compared with cell and with other species.

C. elegans—Colour, purple and brown; dark purple

pigment cells; a mass of whitish, granular matter in cell visible through the back of the cell when fresh.

C. geminata-Colour, pink; 12 tentacles.

· C. carinata—Colour, bright lemon yellow.

Scrupocellaria scrupea—Colour, pink; 16 tentacles. Observed vibracula in motion.

S. ornithorhynchus—Colour, pink; 12 tentacles.

Emma tricellata—Colour, pink; 12 tentacles.

E. crystallina—Colour, pink.

E. cyathus—Colour, orange.

Canda arachnoides—Colour, bright orange; 16 tentacles. Observed some delicate setæ springing from avicularia move.

Salicornaria hirsuta—Colour, delicate pink ; 16 tentacles ; ovicells full of scarlet ova.

S. farciminoides—Colour, pink.

Onchopora hirsuta—Colour, pink.

Scruparia chelata—Colour, whitey brown; 10 tentacles. Caberea Boryi—Colour, orange; 16 tentacles; vibracula very active.

 $\tilde{C}$ . lata (?)—Colour, orange; 16 tentacles.

*Bicellaria ciliata*—White in colour; 16 tentacles; avicularia in constant motion; ovicells with small globular mass of orange ova.

Bugula dentata—Bluish green colour; 16 tentacles. A very beautiful species. Minute dark green, almost black, pigment cells; animal very lively; avicularia opened and shut freely, and waved about.

B. cucullata—Colour, light brown; 12 tentacles; ovicells, globose when alive; not cucullate, but became so on drying.

Flustra denticulata-Colour, light pink; 16 tentacles.

Carbasea cyathiformis—Nearly colourless; 16 tentacles; ova in ordinary cells.

C. pisciformis—Colour, orange; 20 tentacles; very long and slender; ova in ordinary cells; ovicells with scarlet granular mass of ova.

C. dissimilis—Colour, bright orange.

Diachoris magellanica—Light brown colour; avicularia moved.

D. spinigera—Very light brown in colour; avicularia moved; animal did not expand, but showed in mounted specimens apparently 20 tentacles.

*Didymia simplex*—Delicate rose pink colour; ovicells with red ova; animal did not expand, but noticed particles moving about in perigastric space.

